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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,382	08/15/2006	Toshiyuki Ogata	1608-6 PCT/US	6030

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EXAMINER	
LEE, SIN J	

ART UNIT	PAPER NUMBER
1795	

MAIL DATE	DELIVERY MODE
10/30/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/589,382	OGATA ET AL.	
	Examiner	Art Unit	
	Sin J. Lee	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4 and 6-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4 and 6-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/22/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicants canceled claims 3 and 5.

2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Claim Rejections - 35 USC § 103

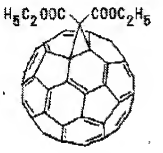
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, 2, 4, 6-9, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al (JP 11-109613 and its machine-assisted English translation provided by JPO) in view of Bingel (5,739,376).

Ota teaches a positive photoresist composition containing a fullerene derivative soluble in a solvent for a resist, a photoacid generator and an acid-labile resin. Ota also teaches a negative photoresist composition containing a fullerene derivative, a photoacid generator, an alkali-soluble resin and a crosslinking compound (see abstract

of the English translation). Ota also teaches the use of organic solvent (see [0072] of English translation) as well as various additive agents such as acid diffusion controlling agent (see [0070] of English translation). Ota teaches present pattern-forming method (see [0073] of English translation).

Ota teaches ([0011]) the following fullerene derivative;



For this compound, present "n" would be 1 and thus does not teach present "n" value of two or more. Bingel teaches (see col.1, lines 38-45, lines 55-63, col.2, lines 25-27, col.3, lines 34-50 and Examples 1 and 2) the equivalence of a fullerene derivative having one malonic ester residue and a fullerene derivative having two or more malonic ester residues in terms of improving *solubility* and polarity of the fullerene derivatives. Based on this teaching of equivalency in terms of providing improved solubility and polarity of the fullerene derivatives, it would have been obvious to one skilled in the art to obtain Ota's fullerene derivative having two or more malonic ester residues. Thus, Ota in view of Bingel would render obvious present inventions of claims 1, 2, 4, 6-9 and 11.

With respect to present claim 12, Ota teaches equivalence of the $-COOC_2H_5$ group and –COO-t-butyl (see [0008] of English translation). Based on Ota's such teaching in view of Bingel's teaching, it would have been obvious to one skilled in the art

to obtain Ota's fullerene derivative having two malonic ester residue groups having t-butyl groups (instead of the ethyl groups) with a reasonable expectation of success. Thus, Ota in view of Bingel would render obvious present invention of claim 12.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al (JP 11-109613 and its machine-assisted English translation provided by JPO) in view of Bingel (5,739,376) as applied to claim 1 above, and further in view of Sato et al (6,159,652).

Although Ota in view of Bingel does not teach present organic carboxylic acid, use of such compound in a photoresist composition is already known in the art to provide high sensitivity and high resolution for the composition. See Sato, col.10, lines 57-64. Thus, it would have been obvious to one skilled in the art to use an organic carboxylic acid in Ota's photoresist composition in order to provide high sensitivity and high resolution. Therefore, Ota in view of Bingel would render obvious present invention of claim 10.

Response to Arguments

6. Applicants points out to Comparative Example 1 of present specification in which the fullerene derivative of Ota (n=1) was undissolved in the resist solvent and from Comparative Example 4, in the case of the fullerene derivative of Ota, the pattern configuration was not developed. However, such argument of unexpectedly superior results of present invention is not found to be persuasive because the comparison is not made to the closet prior art. Evidence of unexpected properties may be in the form of a direct or indirect comparison of the claimed invention with the *closest prior art which is*

commensurate in scope with the claims. See In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See also MPEP 716.02(e). An affidavit or declaration under 37 CFR 1.132 must compare the claimed subject matter with the closest prior art to be effective to rebut a prima facie case of obviousness. In re Burckel, 592 F.2d 1175, 201 USPQ 67 (CCPA 1979). "A comparison of the claimed invention with the disclosure of each cited reference to determine the number of claim limitations in common with each reference, bearing in mind the relative importance of particular limitations, will usually yield the closest single prior art reference." In re Merchant, 575 F.2d 865, 868, 197 USPQ 785, 787 (CCPA 1978) (emphasis in original). Where the comparison is not identical with the reference disclosure, deviations therefrom should be explained, In re Finley, 174 F.2d 130, 81 USPQ 383 (CCPA 1949), and if not explained should be noted and evaluated, and if significant, explanation should be required. In re Armstrong, 280 F.2d 132, 126 USPQ 281 (CCPA 1960). Also, the results for present Example 4 are labeled as "dissolved" whereas the results for Comparative Example 1 are labeled as "not dissolved". By merely looking at those relative terms, it is rather difficult to ascertain the degree of improvement or superiority of present invention.

Applicants argue that the relationship between the number of subscript n and the solubility remains unrecognized in Bingel. Applicants also argue that Bingel does not disclose the use of fullerene derivatives in the resist composition or the type of fullerene derivative to render the solubility in solvent necessary to obtain the effects required by present invention. Thus, applicants argue that adopting Bingel's fullerene derivative into the resist composition of Ota is not obvious nor would one skilled in the art combine the

two with any reasonable expectation of success. The Examiner disagrees. Bingel states that it was his objective to synthesize fullerene derivatives containing structural units having functional groups which *improve* physical properties, such as *solubility* or polarity of the fullerene derivatives. Then, as specific examples of such fullerene derivatives, Bingel teaches those shown in Example 1 (n=1) and Example 2 (n=2). Based on Bingel's teaching, it is the Examiner's position that one skilled in the art would have been motivated to use Bingel's compound of Example 2 in Ota's composition (since Ota's composition is said to contain a fullerene derivative soluble in a solvent for a resist) with a reasonable expectation of success.

For the reasons stated above, present rejection over Ota in view of Bingel still stands.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is 571-272-1333. The examiner can normally be reached on Monday-Friday from 9:00 am EST to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sin J. Lee/
Primary Examiner, Art Unit 1795
October 26, 2008